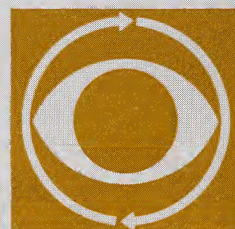


Marconi 322 Series

V322A VIDICON CAMERA



The V322A camera is a compact, single-unit solid-state television camera of professional quality providing a high degree of operational simplicity and stability

FEATURES

Outstanding picture quality.

Extreme simplicity of operation—lens iris and focus are the only operational adjustments.

Entirely self-adjusting for wide variations in scene illumination and ambient temperature.

Solid-state circuits provide long-term performance stability with compact size and low heat dissipation.

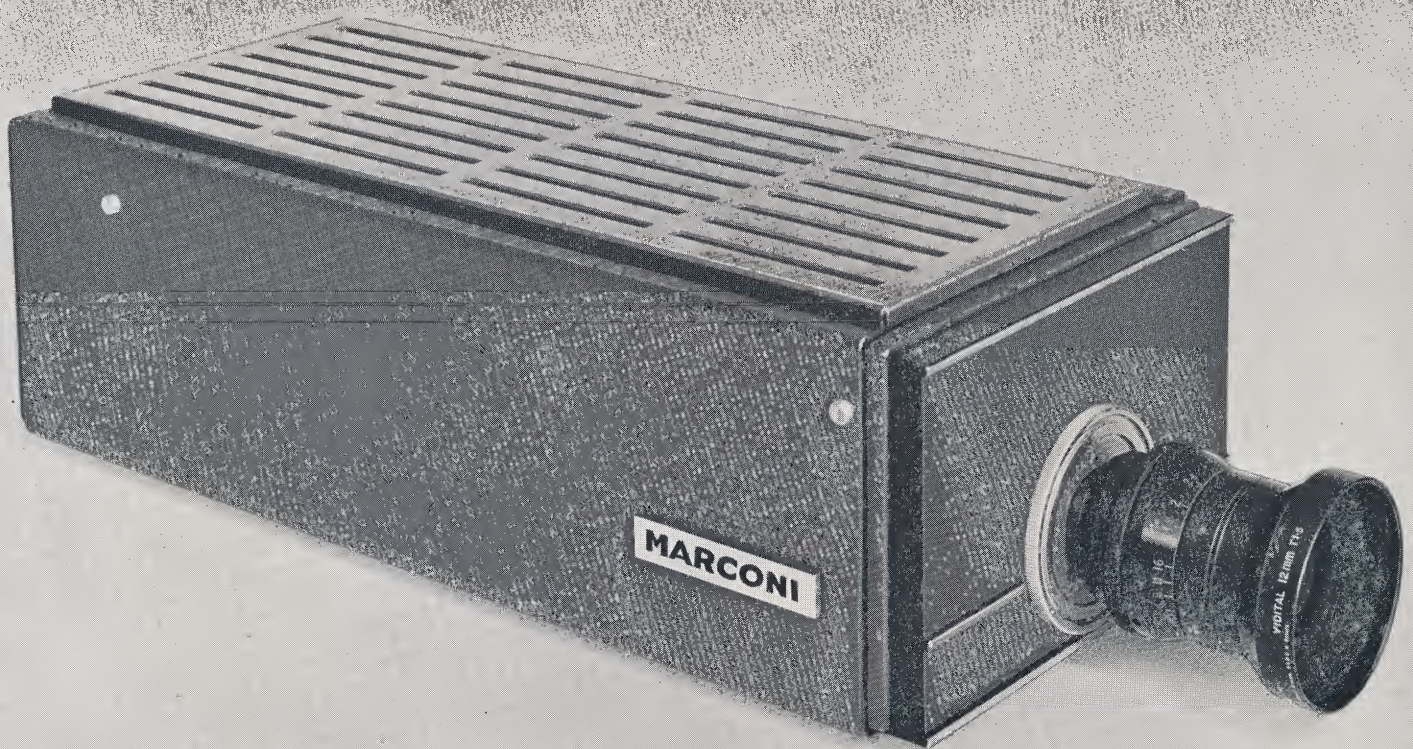
Equally adaptable to small or large systems.

Simple construction for servicing accessibility.



Picture quality

The V322 camera provides a standard of picture quality previously associated only with much more costly equipment. A major factor in achieving this is the employment of a higher-than-normal Vidicon focussing flux, the effect of which is to raise considerably the resolution limit imposed by the Vidicon itself, together with a precision scanning yoke of very superior design. To obtain the fullest advantage of this arrangement, the camera has been designed to utilize the new separate-mesh Vidicon, which offers a substantial improvement in picture uniformity and corner resolution over the conventional tube, although use of the latter is not precluded.



Simplicity of operation

The multiplicity of operating controls normally associated with a television camera has been completely eliminated with the V322. Operation is limited to three simple actions—switch on, adjust the lens iris for satisfactory contrast, adjust the focussing knob for the sharpest picture. No other operating control is provided and no further adjustment is normally necessary.



Entirely self-adjusting

Re-setting of the lens iris, subsequent to initial adjustment, is rendered unnecessary by virtue of a circuit which automatically maintains a contrast output from the camera regardless of changes in illumination as great as 2,000 times. The effect of this circuit is to maintain the brightness of white picture information at a pre-determined level by adjustment of the Vidicon sensitivity.

Furthermore, absolute black in the picture is also maintained at a pre-set level by means of the Automatic Black-level Control Circuit, a unique feature of this equipment. This circuit operates by compensating for the variations in Vidicon dark current, which result from variations in sensitivity adjustment and ambient temperature, and which normally result in substantial variation of picture quality.

Thus, these two automatic circuits together maintain the contrast range and grey scale of the picture as they are initially set, despite wide subsequent variations of the ambient operating conditions.

Stabilization of d.c. voltages and careful circuit design ensure independence of supply voltage variations up to ± 10 per cent.

Solid-state circuits

The use of solid-state devices for all active circuit components other than the Vidicon ensures the utmost performance stability and reliability achievable with current techniques. Minimization of size, weight and heat dissipation are additional consequent advantages.

System adaptability

An inherent part of the V322 design study involved a thorough evaluation of all potential system requirements. As a result, the camera is equally suitable for use either in the simplest single channel application or in a complex installation involving a multiplicity of cameras and displays. Moreover, simple installations can be expanded and re-arranged without the need for fundamental modifications to the existing cameras.

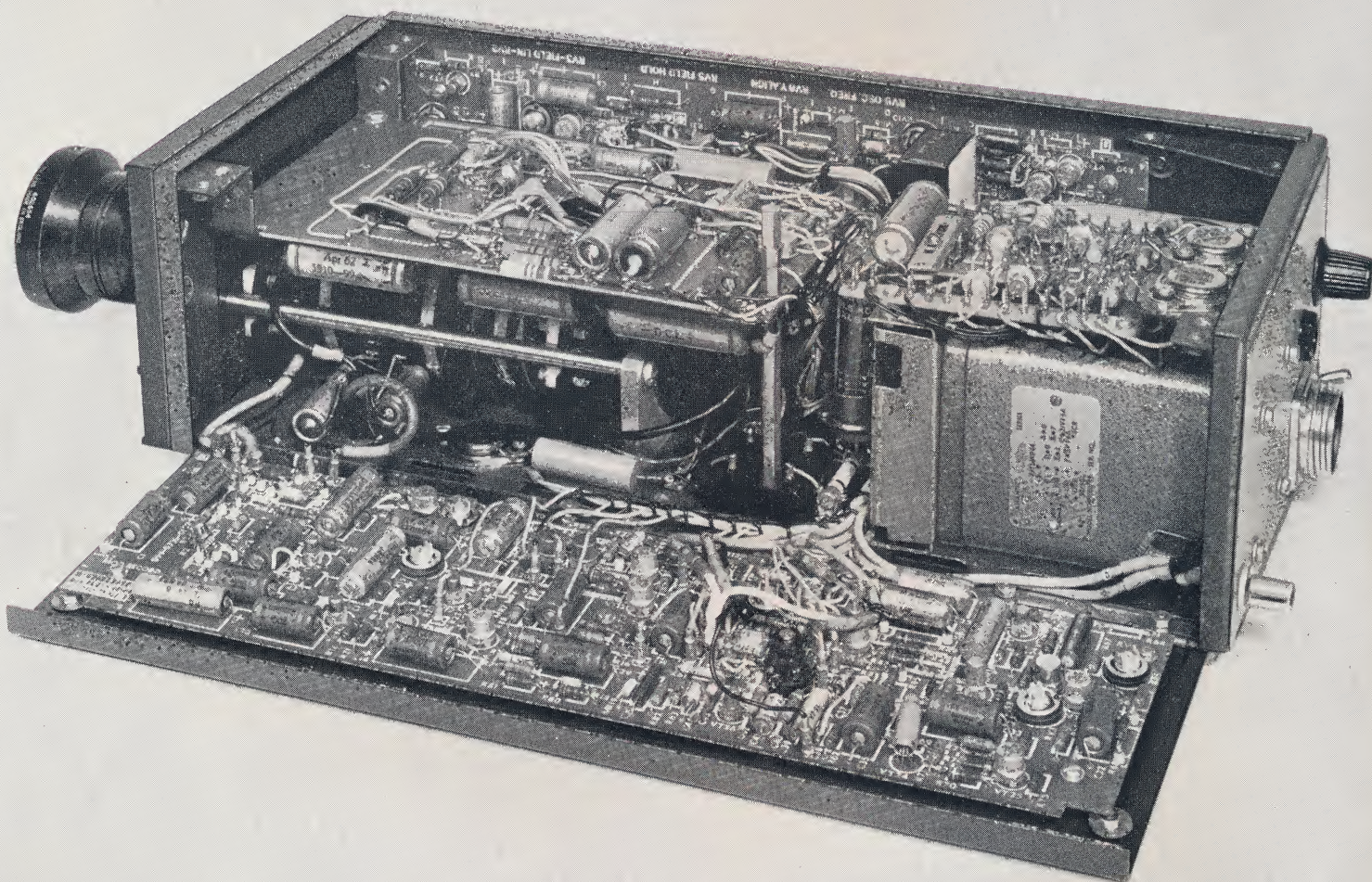
Thus, the scanning generators in the camera can be either independent, 2 to 1 interlaced, or driven from an external source common to the other cameras in a multiple-camera installation involving picture switching.



A full range of accessories is available, including a remote control unit for optical focus, junction box for connection of electrically driven zoom lenses and other remote controls and teleciné components. The full Marconi range of system elements, including synchronizing generator, switching equipment, distribution equipment and displays, supplements the basic equipment.

Mechanical construction

The construction of the V322 camera has been designed to achieve maximum accessibility for servicing. With the side panels open, the two main printed boards can be inspected and rapidly removed. The 2:1 interlace printed board, an optional extra, is located immediately beneath the top cover



Technical specification

Ambient Temperature: -10 to $+45^{\circ}\text{C}$ for continuous operation.

Humidity: Up to 95% over temperature range.

Power Supply: 100-125 or 200-250V, 48-62 c/s.

Power Consumption: Camera 35VA.

Dimensions: Camera V322A Height 4.75 in. (11 cm)
Width 6.75 in. (17.1 cm)
Length 15.25 in. (38.7 cm)
Weight 19 lbs. (8.5 kg)

Scanning Standards: 625 lines, 50 fields or 525 lines, 60 fields, random interlace (line freq. crystal controlled, field freq. locked to mains). 2:1 interlace by optional internal printed board or external source.

Scanning Linearity: Less than 1.5% departure from the ideal.

Video Bandwidth: ± 0.5 dB at 7 Mc/s — 3 dB at 8 Mc/s.

Horizontal Resolution: 600 lines per picture height Marconi resolution chart Zone 1; 500 lines per picture height elsewhere.

Sensitivity (with P842 Vidicon): Usable picture at 1 ft. Lambert with lens at $f/1.4$ and limited movement. Virtually lag-free pictures at 50 ft. Lamberts with lens at $f/2$.

Video Output: Internally preset to give from 1.0 to 1.5 volt peak-to-peak composite, or 0.7 to 1.0V peak-to-peak non-composite into 75 ohms.

R.F. Output: 100mV r.m.s. with at least 70% negative modulation at peak white. Choice of one of three pre-tuned channels in frequency range 50-88 Mc/s.

Auto-Sensitivity Range: 2000-1 above 0.25 ft. candles on Vidicon faceplate.

Auto-black-level Range: Stable black-level set up over Vidicon dark current change from 0 to 0.25 μA .

Signal-to-noise Ratio: Peak-to-peak signal/r.m.s. noise 36dB at 0.3 μA signal current.

CAMERA CONTROLS

External: Power ON/OFF SWITCH, Optical Focus.

Internal Pre-set: Target Limit, Beam, Beam Focus, Height, Width, Centering, X and Y Alignment, Video Gain, Sync. Level, Black-level.

CONNECTORS

Two connectors and a headset socket are fitted on the rear face of the camera. These are utilized as follows:

1—75 ohm coaxial outlet (B.N.C) video output.

2—19-way plug (Cannon Electric SK-19-32S).

(a) Video output (in parallel with coaxial socket)

(b) R.F. output

(c) Mains input

(d) Field telephone

(e) Line drive

(f) Field drive

(g) Mixed synchronizing pulses

(h) Mixed blanking pulses

(j) Remote focus (if fitted).

2V P-P synchronizing pulses from external generator if required

SOME OPTIONAL ACCESSORIES FOR THE V322A

Internal: 2:1 Interlace Board type B99-0757-01. Converts system to 2:1 interlace. In this condition the camera may be crystal or mains locked.

V4013 Remote Focus Kit.

External: V4070 Junction Box—Interconnects control cable to camera and enables extra cores in control cable to be used for controlling camera housings, zoom lenses etc.

V4041 Motorized Pan and Tilt Head.

V4023 Motorized Zoom Lens, 15-150 mm $f/2.8$.

V4271 Document Viewing Unit complete with transistorized intercommunication amplifier.

Complete range of Vidicon lenses.

Tripods.

Teleciné Multiplexers.

Housings for outdoor and industrial use.

Adjustable Camera Mounting Clamps.



For further information write or telephone to:

The Marconi Company Limited

Closed-Circuit Television Division, Basildon, Essex, England
Telephone: Basildon 22822 Telegrams: Basildon Telex: 1964

Marconi 322 Series



V322B STUDIO VIDICON CAMERA





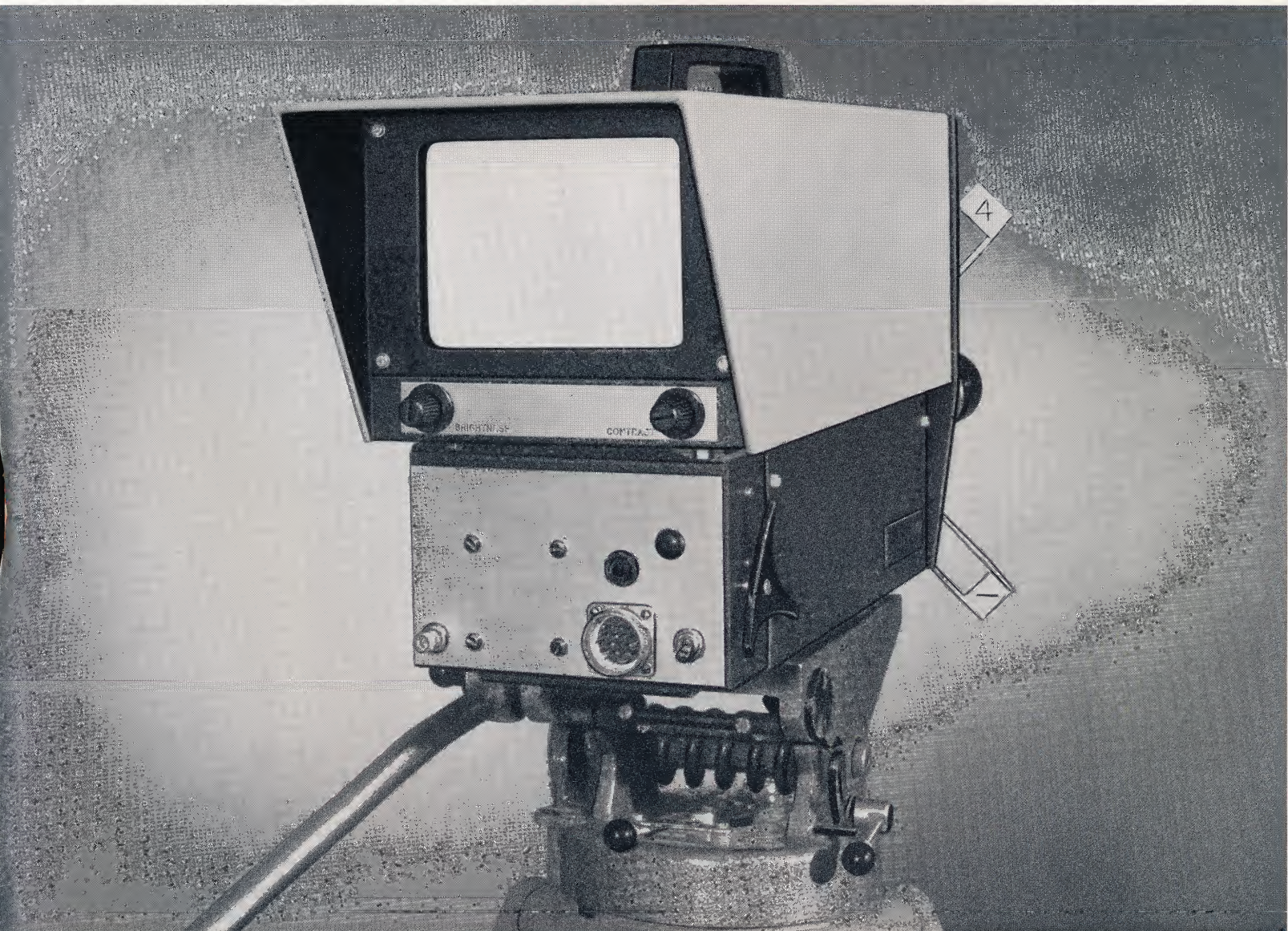
The V322B camera is a compact, single-unit, solid state television camera of professional quality providing a high degree of operational simplicity and stability. It is eminently suitable for studio applications specifically in the educational field.

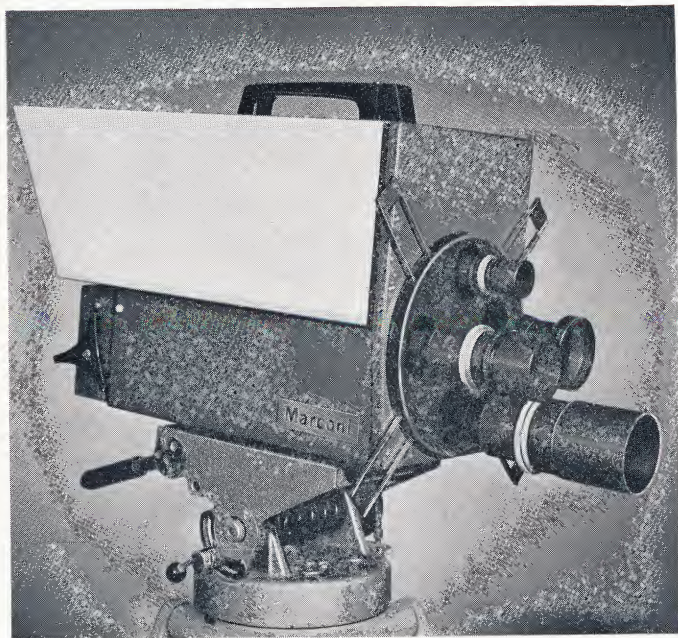
FEATURES

- 1 7 inch high brightness electronic viewfinder
- 2 Manually operated four lens turret
- 3 Outstanding picture quality
- 4 Extreme simplicity of operation—lens iris and capstan focussing are the only operational adjustments
- 5 Entirely self-adjusting for wide variations in scene illumination and ambient temperature
- 6 Solid-state circuits provide long-term performance stability with compact size and low heat dissipation
- 7 Full system adaptability
- 8 Simple construction for servicing accessibility

Electronic Viewfinder

A 7 inch high brightness picture monitor forms an integral part of the V322B camera. Sealing of the picture tube faceplate eliminates the ingress of dust. The high quality deflection yoke ensures accurate picture geometry and excellent overall focus. Brightness and contrast controls are provided adjacent to the tube face. All other controls are internal and pre-set. With the exception of the high voltage rectifier, the viewfinder is fully transistorized.





Lens Turret

The manually operated lens turret accepts four 16 mm. type "C" mount lenses and permits selection of lenses having focal lengths of $\frac{1}{2}$ to 4 inches (15—100 mm.) or 1 to 6 inches (25—150 mm.). The turret is actuated manually by means of protruding spokes, numbered to identify the selected lens, which can be retracted for transit purposes or to indicate the absence of a lens.

Picture Quality

The V322 camera provides a standard of picture quality previously associated only with much more costly equipment. A major factor in achieving this is the employment of a higher than normal Vidicon focussing flux, the effect of which is to raise considerably the resolution limit imposed by the Vidicon itself, together with a precision scanning yoke of very superior design. To obtain the fullest advantage of this arrangement, the camera has been designed to utilize the new separate mesh Vidicon, which offers a substantial improvement in picture uniformity and corner resolution over the conventional tube, although use of the latter is not precluded.

Simplicity of Operation

The multiplicity of operating controls normally associated with a television camera has been completely eliminated with the V322. Operation is limited to three simple actions—switch-on, adjust the lens iris for satisfactory contrast, adjust the capstan focussing handle for the sharpest picture. No other operating control is provided and no further adjustment is normally necessary.

Entirely Self-adjusting

Re-setting the lens iris, subsequent to initial adjustment, is rendered unnecessary by virtue of a circuit which automatically maintains a constant output from the camera regardless of changes in illumination as great as 2,000 times. The effect of this circuit is to maintain the brightness of white picture information at a predetermined level by adjustment of the Vidicon sensitivity.

Furthermore, absolute black in the picture is also maintained at a pre-set level by means of the Automatic Black-level Control Circuit, a major feature of this equipment. This circuit operates by compensating for the variations in Vidicon dark current, which result from variations in sensitivity adjustment and ambient temperature, and which normally result in substantial variations of picture quality.

Thus, these two automatic circuits together maintain the contrast range and grey scale of the picture as they are initially set, despite wide subsequent variations of the ambient operating conditions.

Stabilization of d.c. voltages and careful circuit design ensure independence of supply voltage variations up to ± 10 per cent.

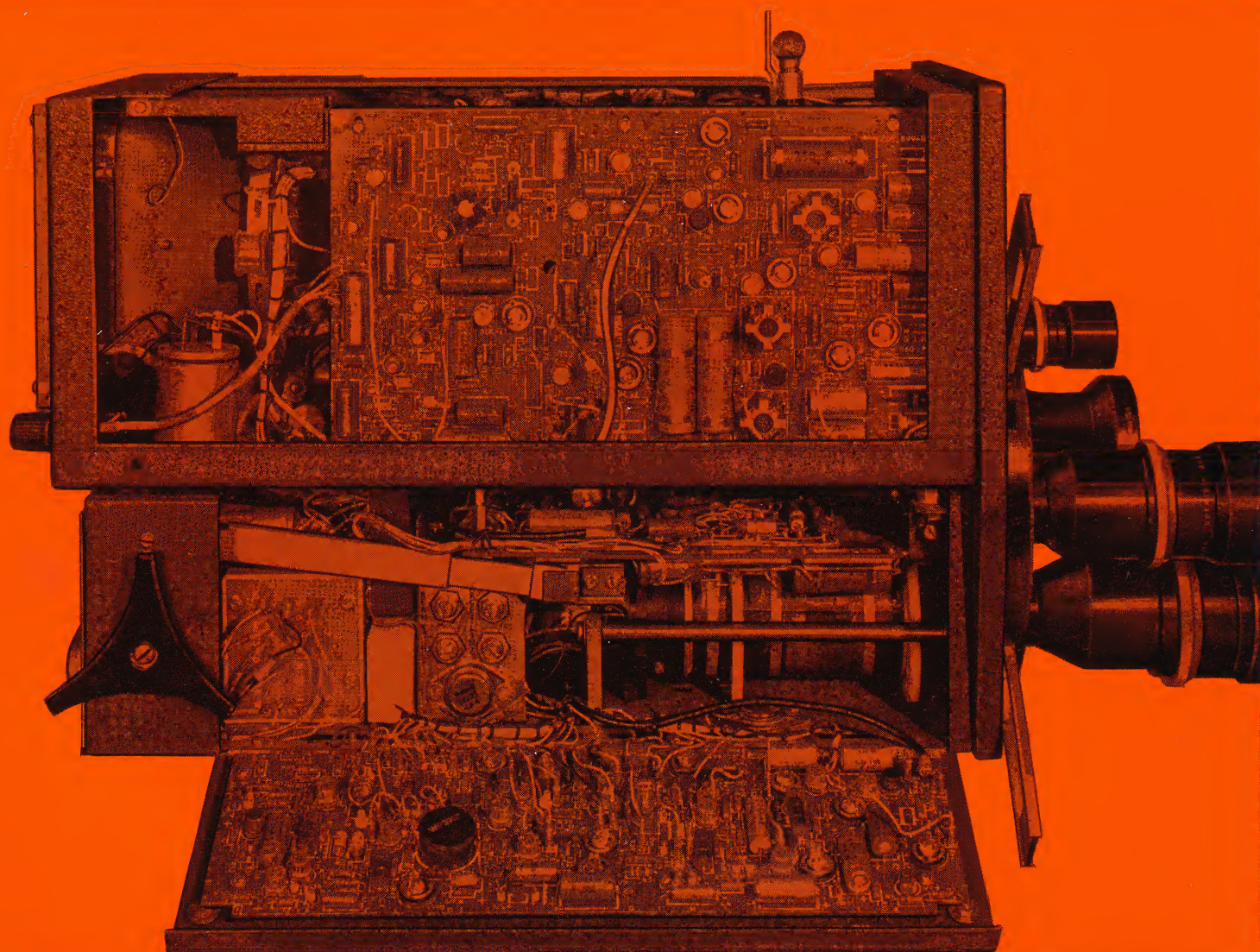
Solid-state circuits

The use of solid-state devices for all active circuit components other than the Vidicon, the high voltage rectifier and the cathode ray tube ensures the utmost performance, stability and reliability achievable with current techniques. Minimization of size, weight and heat dissipation are additional consequent advantages.

Mechanical Construction

The construction of the V322B camera has been designed to achieve maximum accessibility for servicing. With the side panels open, the camera main printed boards can be inspected and rapidly removed. Removal of the top cover provides easy access to the viewfinder monitor which can also be detached from the camera unit. Electrical inter-connection of the camera and viewfinder is by means of a multi-way plug and socket.

The full Marconi range of system elements, including synchronizing generators, switching and mixing equipment, telecine, production talk-back unit, distribution equipment and displays, supplements the basic equipment.



System adaptability

An inherent part of the V322 design study involved a thorough evaluation of all potential system requirements. As a result, the camera is equally suitable for use either in the simplest single channel application or in a complex installation involving a multiplicity of cameras and displays. Moreover, simple installations can be expanded and re-arranged without the need for fundamental modifications to the existing cameras.

Thus, the scanning generators in the camera can be either independent, 2 to 1 interlaced, or driven from an external source common to the other cameras in a multiple-camera installation involving picture switching and mixing.



Technical Specification

Ambient temperature: -10 to $+45^{\circ}\text{C}$ for continuous operation

Humidity: Up to 95% over temperature range

Power supply: 100-125 or 200-250V, 48-62 c/s

Power consumption: 100 VA

Dimensions: Height 12.5 in. (31.8 cm)

Width 8 in. (20.3 cm)

Length 16.5 in. (42 cm)

Weight 48 lbs. (21.8 kg)

Scanning standards: 625 lines, 50 fields or 525 lines, 60 fields, random interlace (line freq. crystal controlled, field freq. locked to mains) 2:1 interlace by optional internal printed board or external source

Scanning linearity: Camera: less than 1.5% departure from the ideal
Viewfinder: less than 2% departure from the ideal

Video bandwidth: Camera: ± 0.5 dB at 7 Mc/s -3 dB at 8 Mc/s
Viewfinder: ± 0.5 dB at 8 Mc/s -3 dB at 10 Mc/s

Horizontal resolution: 600 lines per picture height Marconi resolution chart Zone 1, 500 lines per picture height elsewhere

Sensitivity (with P842 Vidicon): Usable picture at 1 ft. lambert with lens at $f/1.4$ and limited movement. Virtually lag-free pictures at 50 ft. lamberts with lens at $f/2$.

Viewfinder highlight brightness: not less than 75 ft. lamberts

Video output: Internally pre-set to give from 1 to 1.5 volt peak-to-peak composite or non-composite into 75 ohms

R.F. output: 100 mV r.m.s. with at least 70% negative modulation at peak white. Choice of one of three pre-tuned channels in frequency range 50-88 Mc/s

Auto-sensitivity range: 2000-1 above 0.25 ft. candles on Vidicon face-plate

Auto-black-level range: Stable black-level set up over Vidicon dark current change from 0. to 0.25 μA

Signal-to-noise ratio: Peak-to-peak signal to r.m.s. noise is 36 dB at 0.3 μA signal current

CAMERA CONTROLS

External: Power ON/OFF switch, optical focus

Internal pre-set: Target, target limit, beam, beam focus, height, width, centring, X and Y alignment, video gain, sync. level, black-level, auto/manual, blanking width and separation

VIEWFINDER CONTROLS

External: Contrast, brightness

Internal pre-set: Height, width, horizontal linearity, vertical linearity, focus, centring

CONNECTORS

Two connectors and a headset are fitted on the rear face of the camera. These are utilized as follows:—

1—75 ohm coaxial outlet (B.N.C.) video output

2—19 way plug (Cannon electric SK-19-21C)

(a) Video output (in parallel with coaxial outlet)

(b) R.F. output

(c) Mains input

(d) Production talk-back

(e) Line drive

(f) Field drive

(g) Mixed synchronizing pulses

(h) Mixed blanking pulses

(i) Cue-light

} 2V p-p synchronizing pulses from external generator if required

SOME OPTIONAL ACCESSORIES FOR THE V322B

Internal: 2:1 Interlace Board, type B99-0757-01 converts system to 2:1 interlace. In this condition the camera may be crystal or mains locked. Production talk-back amplifier

External: Complete range of Vidicon lenses, 4:1 and 10:1 zoom lenses
Tripods

Cameraman's headset complete with microphone



For further information write or telephone to:

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Closed Circuit Television Division, Basildon, Essex, England

Telephone: Basildon: 22822 Telegrams: Basildon Telex: 1964